

REMARKS

As a preliminary matter, it is noted that the 10/03/01 action was identified as being a final rejection. On November 7, 2001, applicant filed a partial response pointing out that the finality of the rejection is premature and requesting that the finality be withdrawn.

Owing to mailing problems, the November 7 response did not reach the Examiner until mid-January and, in a telephone interview (the Examiner being thanked for calling the undersigned), the Examiner explained that the finality is withdrawn and an extension of time, through February 11, 2002, has been granted. (It appears that no formal, written notification of the withdrawal and the term extension is to be provided.)

New Claims 8-12 are added.

The rejections of the claims are respectfully traversed.

The Examiner's comment that Fig. 1 of the pending application teaches all the limitations stated in the preamble (of Claim 1) is correct. A problem with the Examiner's rejection, however, is that having identified the admitted prior art, the Examiner appears to ignore it. Specifically, the burden on the Examiner is to show that persons of skill would be led, or motivated, from the cited references (and not from applicant's disclosure), to modify the prior art structures in the manner specified by the claims. With respect, such direction appears to be missing. The issue is not whether the use of tin oxide layers is known per se, but whether it

is obvious to use such tin oxide layers specifically in the claimed structures.

Claim 1, for example, specifies that the invention is an improvement in a mirror comprising a stack of layers capped with a layer of metal. While such mirrors are known, the issue is whether there is any suggestion in the prior art of using a layer consisting of tin oxide to which the metal capping layer is directly adhered. It is not seen how the invention, as specifically claimed, is shown or suggested in the references.

In D'Errico, a metal capping layer is not used adhered to a layer of tin oxide, but rather a sheet of plasticized polyvinyl butyral. Also, for improving the adherence of the oxide to the plastic sheet, an epoxy resin is used. Accordingly, this patent has little relevance to the claimed invention. Specifically, persons of skill faced with the problem (applicant's specification, page 2, lines 3-6) of improving the adherence of a metal capping layer (not a plastic sheet) to a stack of dielectric layers are not led to applicant's claimed invention by D'Errico who does not show a metal capping layer. Also, while D'Errico does show a layer of tin oxide, an epoxy resin is used for solving a problem of poor adherence in the D'Errico disclosed structure. Thus, rather than teaching that a layer of tin oxide can improve adherence, D'Errico discloses that the use of tin oxide gives rise to a problem of adherence. Accordingly, the disclosure of D'Errico in no sense amounts to a teaching or disclosure leading towards applicant's invention.

Much the same situation exists with Ando et al. Therein, no metal capping layer is used but, rather (column 1, last paragraph), an oxide film. Accordingly, while Ando et al show the use of tin oxide layers, the particular problem faced by applicant, of improving the adherence of a metal capping layer to a stack of dielectric layers, is not addressed by Ando et al., and Ando et al. provide no suggestion of applicant's claimed invention.

It is noted that the invention is chemical in nature, i.e., involving the adhesive interactions between specific materials in specific physical relationships - here, a metal layer capping, or overlying, a stack of layers. In the absence of prior art showing identical relationships, it is not possible to conclude, as a matter of obviousness, the suitability of any combination of materials and structures. The facts that a layer of tin oxide can be adhered, using an epoxy resin, to an overlying plastic sheet (as in D'Errico), or adhered to an overlying amorphous oxide film (as in Ando et al.), are in no way suggestive of the use of tin oxide for improving the adherence of an overlying metal layer as specified in applicant's claims.

The Examiner's argument appears to suggest that the prior art discloses that a tin oxide layer is an all-purpose glue or the like. The prior art neither shows nor suggests this and in the absence of a showing of the use of tin oxide layers as specified in applicant's claims, the mere existence of tin oxide films in other combinations is irrelevant to applicant's invention.

Claim 3 additionally specifies that all the stack layers other than the end layer of tin oxide are of materials other than tin oxide. This claim emphasizes, in one embodiment, the use of the tin oxide specifically for improved adherence. In both reference patents, the tin oxide is but one of several choices of materials disclosed and nothing is shown or suggested that the tin oxide layer has a specific function, in contrast to other materials in the stack (per Claim 3), for improving adherence to an overlying layer (the metal cap).

New Claim 8 is similar to Claim 3 except that the tin oxide layer is specified as being one layer of a pair of dielectric layers in a stack of dielectric layers, all the other stacks comprising materials other than tin oxide. Similarly as Claim 3, Claim 8 emphasizes the unique function of the tin oxide layer in contrast to all the dielectric material layers present. Such uniqueness is neither shown nor suggested in the cited references.

New Claims 9 and 10 specify that the capping metal layer is of gold. Support for this is at page 6 of applicant's specification, second full paragraph. Again, while the use of gold is known, as well as the use of layers of tin oxide, the prior art neither shows nor suggests the specific combination of a stack terminating in a capping layer of gold adhered to a layer of tin oxide.

New Claims 11 and 12 specify that the metal layer is the outer, exposed layer of the stack, i.e., the last of a series of layers deposited on an underlying substrate. These claims more completely distinguish from Ando et al who (while not showing or

suggesting a metal capping layer) do show buried silver layers. Such layers, however, are clamped in place by overlying layers and do not correspond, either in structure or in problems of adherence, to the claimed structures.

Allowance of the application is respectfully requested.

Respectfully submitted



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